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Adaptive developmental assessment of young children with cognitive and/or functional impairments

Visser, L.; Ruiter, S.A.J.; Timmerman, M.E.; Van der Meulen, B.F.; Ruijsenaars, A.J.J.M.

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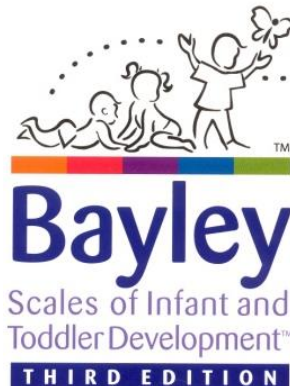
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Adaptive developmental assessment of young children with special needs

L. Visser, S.A.J. Ruiter, M.E. Timmerman, B.F. van der Meulen, A.J.J.M. Ruijsenaars

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Overview

- > Introduction
 - Research project
- > Limitations in early assessment
- > Criteria
- > Bayley-III project: Special Needs Addition
 - Target group
 - Low motor / Low vision
 - Low verbal
 - Dynamic
- > Pilot results and results
- > Main research
- > Conclusion
- > References & Acknowledgements



Introduction

- > Research Project
 - BSID-II
 - Dutch version
 - Pilot research
 - Low Motor
 - Low Vision
 - Non Verbal
 - Bayley-III
 - Special Needs Addition
 - Funding ZonMw and Pearson



Limitations in Early Assessment

- > Low reliability in low range of distribution
- > Reliance on language and motor skills
- > Limited useful information for intervention plan (e.g. developmental potential)
- > Duration (90 minutes)



Criteria

- > Reliable for all levels of developmental functioning
- > Minimum reliance on language or motor skills or vision
- > Gain information about developmental potential
- > Gain information for intervention planning
- > Test duration: short or adaptable
- > Standardized



Bayley-III project: Special Needs Addition (SNA)

- > Reliable for all levels of developmental functioning
 - SNA: Trichotomous scoring (0 – ½ - 1)
- > Minimum reliance on language or motor skills or vision
 - SNA: Low motor / low vision & Low verbal version
- > Gain information about developmental potential
 - SNA: Dynamic version
- > Gain information for intervention planning
 - SNA: Dynamic version
- > Test duration: short or adaptable
 - SNA: Adaptive testing procedure
- > Standardized



Target group

- Target group: children in The Netherlands with
 - a cognitive impairment and / or
 - a motor, visual, speech / language, or hearing impairment
 - developmental age ≤ 42 months
 - calendar age ≤ 10 years
- Children are put forward by > 20 organizations for children with special needs in The Netherlands

Low motor / Low vision

Adjustments:

- > Materials
- > Procedures (e.g. Time limits removed)
- > Instructions (e.g. Adjust distance of materials from child)

Fragment: Item 55 Cognition (peg board), Standard

Fragment: Item 55 Cognition (peg board), Low motor / vision





Low verbal

Adjustments:

- > Cognition scale
- > Instructions (gestures added)
- > Target group: children with speech / language problems or hearing impairment
- > Not suitable for deaf children





Dynamic version

- > Gain information about developmental potential
- > Pretest- Intervention – Posttest
- > Intervention:
 - Repeat procedure
 - Verbal explanation
 - Demonstration
 - Joint execution (hand-over-hand)

Fragment: Item 82 (object assembly, dog) pretest

Item 80 (discriminates sizes) pretest + training

Fragment: Item 80, posttest

Fragment: Item 89 (understands concept of more) pretest + training

Fragment: Item 89, posttest



Pilot research

- > N = 15 per version, tested twice (standard & SNA)
- > Quantitative research: study differences between standard / SNA results
 - Total score
 - On item level
- > Qualitative research
 - Evaluation form completed by test administrator
 - Expert interviews



Pilot results

- > Non-verbal → Low verbal
- > Not possible to test low verbal children with standard version
- > Low verbal version
 - Limited applicability for deaf children
 - Suitable for children with speech / language problems
- > Clear advantage of low motor / low vision adaptations
- > Pilot results of all three versions were reason for final adjustments in the manual and scoring form



Main research

- > Research questions:
 - Do children with special needs benefit from the adjustments made?
 - Does item difficulty remain unchanged?
 - Is it possible to develop an adaptive testing procedure?
 - Does trichotomous scoring improve reliability?
- > Sample size
 - n = 100 low motor / low vision (tested twice)
 - n = 50 low motor / low vision controls (tested twice)
 - n = 50 low verbal
 - n = 85 dynamic version
 - n = 420 standard version
- > Published by Pearson in 2014



Conclusion

- There is a clear need for a developmental assessment instrument for children with special needs.
- The Bayley-III-NL-SNA is a promising solution to existing problems. The research in the upcoming years will show whether or not it is a useful instrument.



References & Acknowledgments

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